San Joaquin Valley Drainage Authority

Westside San Joaquin River Watershed Coalition (WSJRWC)

Constituent-Specific Management Plan for Pesticides and Toxicity

Prepared by:
Summers Engineering, Inc.
Consulting Engineers
Hanford, California

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INTRODUCTION AND BACKGROUND

In October 2008, the Westside San Joaquin River Watershed Coalition (WSJRWC or Coalition) submitted a Surface Water Quality Management Plan – General Approach, which was approved by the Central Valley Regional Water Quality Control Board (Regional Water Board) in November 2008. This Management Plan outlined the general approach to address water quality exceedances on a watershed-by-watershed basis. Since the time of its adoption, watershed-specific Focused Management Plans were developed for numerous constituents at several locations:

- Hospital Creek (2008)
- Ingram Creek (2008)
- Del Puerto Creek (2011)
- Westley Wasteway (2011)
- Orestimba Creek (2011)
- Salt Slough (including Poso Slough) (2011)
- Blewett Drain (2014)
- Marshall Road Drain (2014)
- Spanish Land Grant Drain (2014)

Although this approach produced improvements in water quality within the affected watersheds, the approach does not fit well within the requirements of the WSJRWC's most recent Waste Discharge Requirements adopted in 2014. As a result, the general SQMP is being modified in favor of the new constituent-based approach.

On January 31, 2017, the Coalition submitted an updated general Surface Water Quality Management Plan (SQMP) to comply with the 2014 Order. The SQMP was revised on April 14, 2017 and August 15, 2017 in response to comments provided by the Regional Water Board. The revised WSJRWC SQMP identifies when and where constituent-specific monitoring will occur, how the Coalition will evaluate the effectiveness of management practices, assess performance goals and measures, and report on compliance. In addition, the SQMP included management plan implementation schedules and timelines for reporting to the Regional Water Board on the effectiveness of the SQMP.

The management plan approach employed by the WSJRWC in the updated SQMP is to address the same class of constituent(s) across the entire WSJRWC region in as timely a manner as practicable. This strategy allows an efficient allocation of resources to outreach and monitoring while addressing the most significant water quality impairments first. A key aspect of this management plan approach is the development of constituent group management plans. The WSJRWC believes this strategy will be successful in removing pesticides and toxicity from management plans.

The Coalition recognizes that practices implemented to manage discharges can be different for different constituents. As a result, the Coalition is developing constituent specific management plans that focus on specific problems (Table 1). Each of these management plans will follow the same general approach of source identification, outreach, and monitoring. Each constituent specific management plan will focus on the methods used for source identification, the practices that will be provided to growers that are protective of surface water, and the monitoring schedules (location and timing) that will be used to demonstrate compliance. Constituent specific management plans provide all of the required elements of management plans as outlined in the WSJRWC WDR.

Table 1. Time schedule for submitting Constituent Group Management Plans.

CONSTITUENT GROUP	SUBMITTAL DATE
Pesticides/Aquatic Toxicity	August 15, 2017
Sediment Toxicity	November 30, 2017
Nutrients	May 31, 2018
SC/Selenium/Arsenic/Boron/Molybdenum	September 30, 2018[1]

[1] May be subject of Source Identification Study Work Plan prior to this date.

The Coalition's management plan approach for the pesticide and toxicity constituent group is provided in this document. Information on exceedances and toxicity history, potential sources, the management plan strategy, monitoring and reporting timelines, data evaluation methods, and records and reporting specifics is provided below. A detailed description of the WSJRWC's approach to eliminating exceedances of WQTLs involves source identification of discharges for the specific pesticide or toxicity, the approach to the Coalition's outreach to all members who are potential sources of exceedances, and the monitoring strategy used to evaluate the efficacy of implemented management practices.

WSJRWC REGION PHYSICAL DESCRIPTION

The WSJRWC service area generally lies on the west side of the San Joaquin River from approximately the Stanislaus River on the north to 10 miles south of Mendota. The Coalition region encompasses approximately 460,000 acres of active farms and wetlands. There are approximately 2,800 landowners and 1,090 operators within the WSJRWC region. Most of the Coalition region receives water supplies from the Central Valley Project, while certain areas receive water from the State Water Project. In addition, some areas receive water from the San Joaquin River and local water sources, one area receives a Kings River supply, and many members supplement their surface water supplies with groundwater. The Delta-Mendota Canal and San Luis Canal run through the watershed. Water deliveries are made to Federal Central Valley Project Contractors and to San Joaquin River Exchange Contractors from these facilities. State Water Project deliveries are also made to the Coalition region. Figure 1 shows a map of the Coalition service area.

Water within the WSJRWC region moves primarily in natural waterways from west to east, although constructed conveyance structures now also move water from the west edge of the Coalition region to the farmland to the east. Several small drainages originate in the Diablo Range to the west and flow primarily during the winter when rains create surface runoff. Currently, flow during the summer is from irrigation return flow and lateral movement or irrigation water in the shallow subsurface. Since irrigated agriculture is the dominant land use in the Coalition region, additional channels (e.g., Westley Wasteway, Newman Wasteway) have been constructed which can also move water from the west to the east.

Ground slope within the Westside Coalition is variable; with the southern region (around Los Banos and Dos Palos) being relatively flat while the northerly region (north of Newman) is moderately steep. Soils in the south tend to be heavy clays transitioning to clay loam type soils to the north.

Land Use in Management Plan Watersheds

The WSJRWC boundary was developed by the Regional Water Board with input from the WSJRWC steering committee (see Figure 1). Although the total area within WSJRWC region is 1,270,600 acres, the actively farmed area is limited to approximately 430,000 acres of the valley

floor, generally lying between Interstate 5 and the San Joaquin River. Table 2 summarizes the major land uses by acreage using USDA crop acreage estimates. Because the USDA crop categories provide too much granularity to capture and represent in a simple way, crops are combined into categories that are easily reported. A land use map of the Coalition area is provided in Figure 2.

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Figure 1. WSJRWC boundary and monitoring sites.

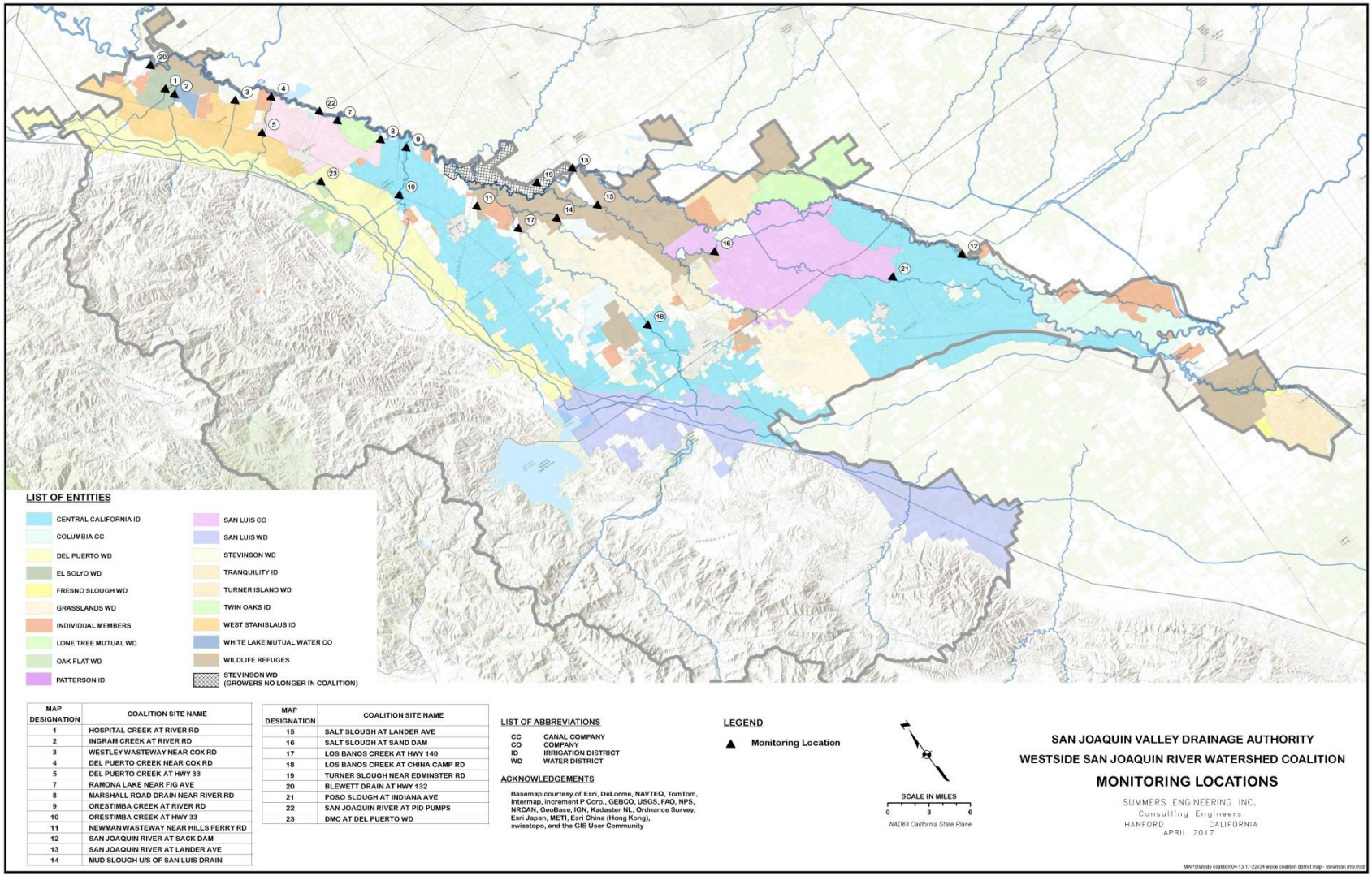


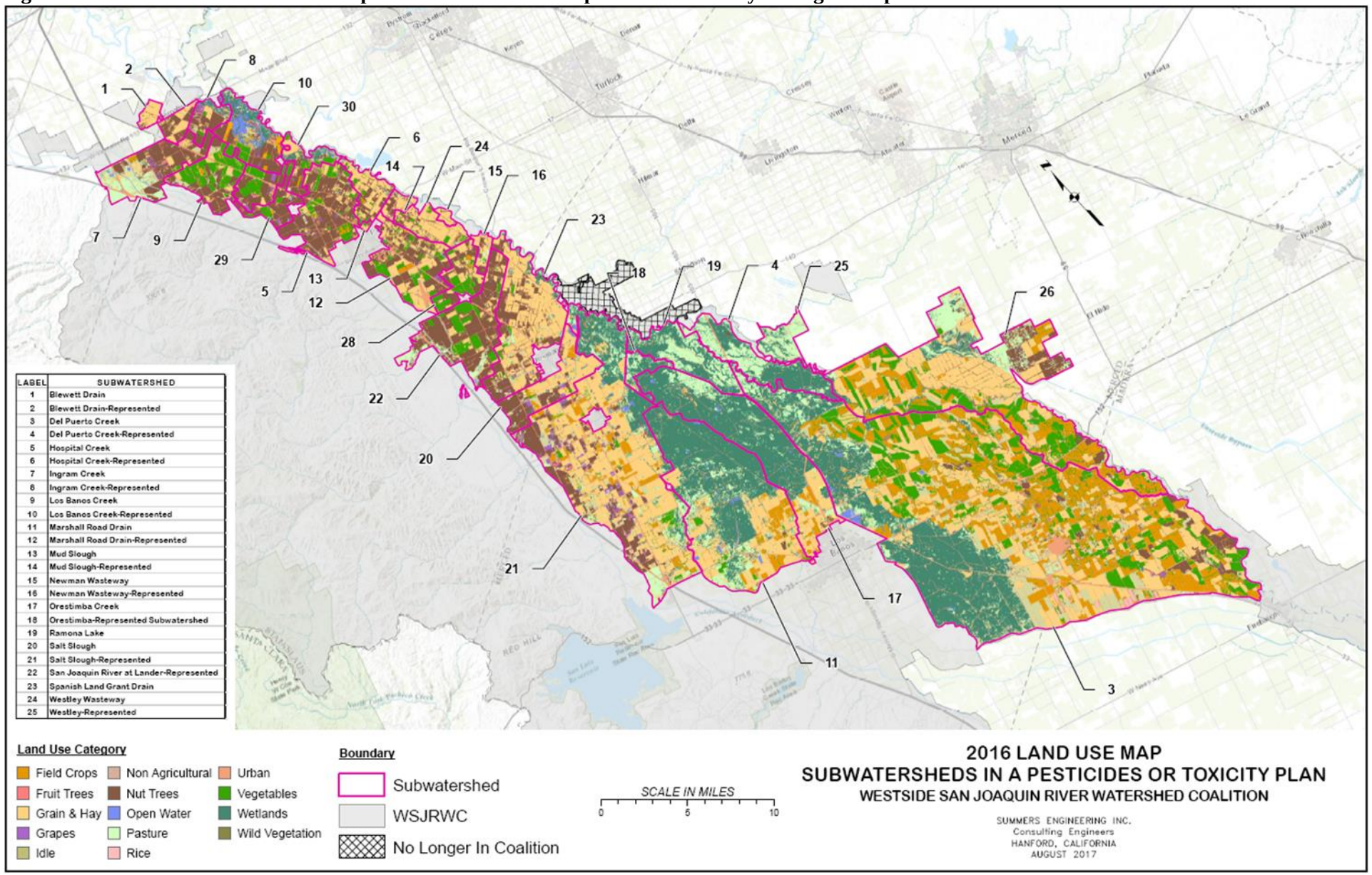
Table 2. Westside Coalition land use acreage of site subwatersheds in a management plan as of May 2017.

Land uses designated as irrigated/non-irrigated (I/NI), sites listed alphabetically; numbers are rounded to nearest whole number.

LAND USE	I/NI	Blewett Drain Subwatershed	Blewett Drain-Represented Subwatershed	Del Puerto Creek Subwatershed	Del Puerto Creek-Represented Subwatershed	Hospital Creek Subwatershed	Hospital Creek-Represented Subwatershed	Ingram Creek Subwatershed	Ingram Creek-Represented Subwatershed	Los Banos Creek Subwatershed	Los Banos Creek-Represented Subwatershed	Marshall Road Drain Subwatershed	Marshall Road Drain-Represented Subwatershed	Mud Slough Subwatershed	Mud Slough-Represented Subwatershed	Newman Wasteway Subwatershed	Newman Wasteway-Represented Subwatershed	Orestimba Creek Subwatershed	Orestimba-Represented Subwatershed	Ramona Lake Subwatershed	Salt Slough Subwatershed	Salt Slough-Represented Subwatershed	San Joaquin River at Lander-Represented	San Joaquin River at Sac Dam-Represented	Spanish Land Grant Drain Subwatershed	Westley Wasteway Subwatershed	Westley-Represented Subwatershed
Field Crops	I	19	32	312	134	147	120	893	284	2,279	15	195	130	680	2	242	2,452	563	1,476	124	24,175	4	6,844	222	238	45	84
Fruit Trees	I	30	0	209	11	203	8	115	68	33		64	28	22	0	177	149	199	368	14	230		68	81	33	61	18
Grain & Hay	I	521	157	1,633	881	465	77	1,058	146	4,009	9	2,523	955	859	6	1,455	11,568	2,190	4,408	480	7,787	2	4,473	1,274	1,150	360	1,421
Grapes	I	17	18	459	75	292	46	91	169	33		267	102	13	2	390	1,715	500	620	93	503	5	119	1,474	96	136	186
Idle	NI	34	12	362	143	449	116	497	385	882	4	496	65	498	0	129	1,184	254	462	109	11,407	2	1,782	1,502	276	42	461
Non Agricultural	NI			34	14	98	3	11	4	51		22	1	4		25	264	147	52	0	619		295	274	5	4	6
Nut Trees	I	807	252	4,902	531	3,379	1,302	1,754	2,054	240	2	3,599	624	93	14	2,156	6,259	5,992	2,701	535	2,741	46	2,778	17,541	1,480	1,723	2,012
Open Water	NI	3	0	36	56	222	15	7	291	415		21	11	23	18	51	249	61	20	5	563	0	127	111	3	22	85
Pasture	I	198	448	1,295	1,428	2,576	196	557	662	7,169	629	1,253	842	4,594	3,569	2,000	15,081	1,771	3,954	2,035	29,527	3,632	17,150	1,891	650	174	1,074
Rice	I						3	0	2	3						0	2	0	6	0	743					4	20
Urban	NI	133	34	824	138	698	133	324	232	1,377	71	1,220	207	1,012	206	442	2,537	843	968	159	6,979	379	1,681	1,146	181	187	331
Vegetables	I	1		302	10	130	18	1,051	243	963		280	31	85	0	2	712	188	100	35	23,615		9,920	267	149	68	106
Wetlands	NI	4	1	7	46	2	439	5	2,224	16,854	1,241	19	44	14,041	3,723	144	5,880	26	725	24	28,861	4,470	2,779	72	8	2	426
Wild Vegetation	NI			24		3	0	2	0	9	1	0		3		0	11	14	0		27	2	17	2		1	1
Grand Total		**1,767**	**955**	**10,401**	**3,468**	**8,665**	**2,476**	**6,366**	**6,765**	**34,318**	**1,972**	**9,961**	**3,039**	**21,927**	**7,539**	**7,212**	**48,062**	**12,748**	**15,861**	**3,615**	**137,777**	**8,542**	**48,033**	**25,858**	**4,269**	**2,829**	**6,229**

* Land use information obtained from data provided by USDA, Cropland Data Layer. USDA. 2012-2016. http://www.nass.usda.gov/research/Cropland/SARS1a.php. Data compiled in 2015, land use in some areas of the Westside Coalition may have changed since that time.

Figure 2. WSJRWC 2016 Land Use Map for subwatersheds in a pesticide or toxicity management plan.



Beneficial Uses of Coalition Waterbodies

The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) lists the beneficial uses for the portion of the San Joaquin River that passes through the WSJRWC region. Very few of the individual creeks or other water bodies in the region are specifically listed. Because most of these water bodies have the potential to discharge to the San Joaquin River, the beneficial uses for the river were applied to the water bodies using the tributary rule. Table 3 lists the beneficial uses identified in the Basin Plan, and their application to other monitored water bodies.

Table 3. Listed and Potential Beneficial Uses.

Surface Water Body or Monitoring Site	MUN	AGR- Irrigation	AGR - Stock Watering	PROC	IND	POW	REC-1 - Contact	REC-1 - Canoeing	REC-2 - Non-contact	HABITAT - WARM	HABITAT - COLD	MIGR - WARM	MIGR - COLD	SPWN - WARM	SPWN - COLD	WILD	NAV
SJR - Mendota Dam to Sac Dam	**P**	**E**	**E**	**E**			**E**	**E**	**E**	**E**		**E**	**E**	**E**	**P**	**E**	
SJR @ Sack Dam (SJRSD)	P	E	E	E			E	E	E	E		E	E	E	P	E	
SJR - Sack Dam to mouth of Merced R.	**P**	**E**	**E**	**E**			**E**	**E**	**E**	**E**		**E**	**E**	**E**	**P**	**E**	
Los Banos Creek (LBCCC, LBCHW)	P	E	E	E			E	E	E	E		E	E	E	P	E	
Newman Wasteway (NWHFR)																	
Salt Slough (SSALA, SSASD)		**E**	**E**				**E**		**E**	**E**				**E**		**E**	
Poso Slough (PSAIA)		E	E				E		E	E				E		E	
Mud Slough North (MSUSL)		**L**	**E**				**E**		**E**	**E**				**E**		**E**	
SJR - Mouth of Merced R to Vernalis	**P**	**E**	**E**	**E**			**E**	**E**	**E**	**E**		**E**	**E**	**E**		**E**	
Orestimba Creek (OCARR, OCAHW)	P	E	E	E			E	E	E	E		E	E	E		E	
Marshall Road Drain (MRDRR)	P	E	E	E			E	E	E	E		E	E	E		E	
Ramona Lake (ROLFA)	P	E	E	E			E	E	E	E		E	E	E		E	
Del Puerto Creek (DPCCR, DPCHW)	P	E	E	E			E	E	E	E		E	E	E		E	
Westley Wasteway (WWNCR)	P	E	E	E			E	E	E	E		E	E	E		E	
Hospital Creek (HCARR	P	E	E	E			E	E	E	E		E	E	E		E	
Ingram Creek (ICARR)	P	E	E	E			E	E	E	E		E	E	E		E	
Blewett Drain (VH132)	P	E	E	E			E	E	E	E		E	E	E		E	

Notes: See "The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region, Fourth Edition, The Sacramento River Basin and the San Joaquin River Basin (2011)", pgs. II-4.00 to II-8.00
E = Existing Beneficial Uses
P = Potential Beneficial Uses
L = Existing Limited Beneficial uses

The site code abbreviations are defined below along with a brief description of each monitoring site. More detailed descriptions are included in the subwatershed appendix. See Figure 1 for the location of the monitoring sites.

- Blewett Drain near Highway 132 (originally called Vernalis at Highway 132 [VH132]). This site is located at the northerly boundary of the Coalition region. Flow at this site is calculated as an estimated velocity and measured flow area. The WSJRWC began monitoring this site in 2008.
- Poso Slough at Indiana Avenue (PSAIA). This site is located on Poso Slough near the boundary between San Luis Canal Company and Central California Irrigation District in the Dos Palos Subarea of the WSJRWC region. Flow at this site is calculated as an estimated velocity and measured flow area. The Coalition began monitoring this site in 2008. Poso Slough is a tributary to Salt Slough, discharging upstream of the Sand Dam monitoring site.
- Hospital Creek at River Road (HCARR). This site is a significant drainage for the Patterson Subarea of the WSJRWC region and has been monitored since July 2004 for a variety of constituents. Sediment discharge, sediment toxicity, aquatic toxicity (water flea), and pesticides have been measured at this site. It is on the 303(d) list for pesticides. Flow at this site is measured by a rectangular weir.
- Ingram Creek at River Road (ICARR). This site is a significant drainage for the Patterson Subarea of the WSJRWC and has been monitored since July 2004 for a variety of constituents. Sediment discharge, sediment toxicity, aquatic toxicity (water flea), and pesticides have been measured at this site. It is on the 303(d) list for pesticides. Flow at this site is measured by a rectangular weir.
- Westley Wasteway near Cox Road (WWNCR). Westley Wasteway is a significant drainage for the Patterson Subarea for both tailwater and storm runoff. Land use upstream of this monitoring station is similar to that of Del Puerto Creek. This site has been monitored for a variety of constituents since 2004. Sediment discharge, sediment toxicity, aquatic toxicity (water flea), and pesticides have been measured at this site. Flow at this site is measured by a rectangular weir.

- Del Puerto Creek near Cox Road (DPCCR) and Del Puerto Creek near Highway 33 (DPCHW). Del Puerto Creek is 303(d) listed for pesticides and is a major drainage for the Patterson Subarea and major stormwater runoff collector. Two stations are located on this water-body; one near the discharge to the San Joaquin River, and one at Highway 33, near the middle of the Patterson Subarea. Both of these sites have been monitored for a variety of constituents since 2004. Sediment discharge, sediment toxicity, aquatic toxicity (water flea), and pesticides have been measured at both sites. At the Highway 33, flow is estimated using the float method.
- Ramona Lake near Fig Avenue (ROLFA). This site monitors discharge from a small lake as it flows into the San Joaquin River. Agricultural and stormwater runoff from the Patterson Subarea can discharge into the lake. This site has been monitored for a variety of constituents since 2004. Some pesticides have been detected at measurable concentrations at this site.
- Marshall Road Drain near River Road (MRDRR). This site monitors a pipe drain that carries agricultural and stormwater runoff from the Patterson Subarea of the WSJRWC region. This site has been monitored for a variety of constituents since 2004. Some pesticides and aquatic toxicity have been found at this site. Flow from this site is measured by a weir within the pipe. During periods of high flow, the weir can become submerged and is incapable of measuring flow.
- Orestimba Creek at River Road (OCARR) and Highway 33 (OCAHW). There are two monitoring locations on Orestimba Creek; one near the discharge point to the San Joaquin River; and one upstream at Highway 33. Orestimba Creek is similar to Del Puerto Creek in both the surrounding landscape and water quality, and is a major drainage for the Patterson Subarea. The creek is 303(d) listed and pesticides, sediment discharge, sediment toxicity, and aquatic toxicity have been measured at these sites. USGS monitors and reports flow at Orestimba Creek at River Road. Flow at Orestimba Creek at Highway 33 is calculated through an estimated velocity and cross-sectional flow area.
- Newman Wasteway near Hills Ferry Road (NWHFR). The Newman Wasteway is a significant drainage for the Patterson Subarea and is on the 303(d) list for salt and pesticides. This site measures drainage that originates from the southerly region of the Patterson Subarea, and has been monitored for a variety of constituents since 2004. Pesticides,

sediment discharge, sediment toxicity, and aquatic toxicity have been measured at this site. Flow at this site is calculated through an estimated velocity and cross-sectional flow area.

- The San Joaquin River at Lander Avenue (SJRLA). This site is both a receiving water-body for agricultural and stormwater drainage and a source water for districts that pump from the San Joaquin River. It also receives drainage flows from irrigated wetlands in the fall and winter months. It has been monitored for a variety of constituents since 2004, and pesticides, sediment toxicity, and aquatic toxicity have been found at this site. Flow at this site is obtained from a nearby CDEC station.
- Mud Slough upstream of the San Luis Drain (MSUSL). This site measures drainage originating from the Dos Palos and Los Banos Subareas that flow through the wetlands as well as the wetlands themselves. Mud Slough is on the 303(d) list for a variety of constituents. Flow at this site is calculated as the difference between the flow downstream of the San Luis Drain (reported by CDEC) and the measured San Luis Drain Discharge. The SWAMP Data is available via the internet at: http://www.waterboards.ca.gov/centralvalley/programs/agunit/swamp/index.html.
- Salt Slough at Lander Avenue (SSALA). Salt Slough at Lander Avenue measures agricultural, stormwater, and wetland runoff from the Dos Palos and Los Banos Subareas, and has been monitored (and 303(d) listed) for a variety of constituents since 2004. Flow at this site is reported by CDEC. The SWAMP Data are available via the internet at: http://www.waterboards.ca.gov/centralvalley/programs/agunit/swamp/index.html.
- Salt Slough at Sand Dam (SSASD). This site is upstream of the Lander Avenue site and measures agricultural and stormwater drainage originating in portions of the Dos Palos Subarea. Pesticides and aquatic toxicity have been measured at this site, which has been monitored for a variety of constituents since 2004. Flow at this site is measured by a weir.
- Los Banos Creek at Highway 140 (LBCHW). This site carries agricultural, stormwater and irrigated wetland runoff from the Los Banos Subarea. Some pesticides have been measured at this site. Flow at this site is calculated through an estimated velocity and cross-sectional flow area.
- Los Banos Creek at China Camp Road (LBCCC). This site monitors agricultural and storm runoff from the Los Banos Subarea, upstream of the Highway 140 site. There is a farmer-maintained dam downstream of this site which is frequently used to stop flows so that it may

be diverted for irrigation. Flow at this site is calculated through an estimated velocity and cross-sectional flow area.

- San Joaquin River at Sack Dam (SJRSD). This is a source water monitoring site located at the diversion point for San Luis Canal Company. This site is monitored for source water constituents. Flow at this site is measured across the dam.
- Delta Mendota Canal at Del Puerto Water District (DMCDP). This site monitors water quality in the Delta Mendota Canal at a Del Puerto Water District turnout. This site characterizes the source water quality typical of the Delta Mendota Canal, and is monitored for source water constituents. Flow is not measured at this site.
- San Joaquin River at Patterson Irrigation District Pumps (SJRPP). This monitoring site is located at the Patterson Irrigation District pump station on the San Joaquin River and characterizes the source water quality of the San Joaquin River in the Patterson Subarea. This site is monitored for source water constituents. Flow from this site is reported by CDEC. This site is the same as the San Joaquin River at Las Palmas site listed in the Chlorpyrifos and Diazinon TMDL program.

Most of these sites have been monitored continuously by the WSJRWC since July 2004[1]. Monitoring sites were selected to characterize the major discharge points and be representative of adjacent areas identified in the 2004 Watershed Evaluation Report and subsequent monitoring reports.

Table 4. WSJRWC monitoring sites

Site Name	SWAMP Code	Station Code	Latitude	Longitude
Discharge Sites				
Hospital Creek at River Road	541STC042	HCARR	37.61047	-121.23078
Ingram Creek at River Road	541XSJRPP	ICARR	37.60022	-121.22506
Westley Wasteway near Cox Road	541XWWNCR	WWNCR	37.55822	-121.16372
Del Puerto Creek near Cox Road	541XDPCCR	DPCCR	37.53936	-121.12206
Del Puerto Creek at Hwy 33	541XDPCHW	DPCHW	37.51406	-121.15956
Ramona Lake near Fig Avenue	541XROLFA	ROLFA	37.47875	-121.06839
Marshall Road Drain near River Road	541XMRDRR	MRDRR	37.43631	-121.03617
Orestimba Creek at River Road	541STC019	OCARR	37.41386	-121.01489
Orestimba Creek at Hwy 33	541STC519	OCAHW	37.37717	-121.05856
Blewett Drain near Highway 132	541XVH132	VH132	37.64053	-121.22942
Newman Wasteway near Hills Ferry Road	541XNWHFR	NWHFR	37.32036	-120.98336
San Joaquin River at Lander Avenue**	541MER522	SJRLA	37.29506	-120.85139
Mud Slough u/s San Luis Drain**	541XMSUSL	MSUSL	37.26164	-120.90614

[1] Blewett Drain at Highway 132 (VH132), Poso Slough at Indiana Avenue (PSAIA), and the SJR at PID Pumps (SJRPP) were added to the monitoring program in 2008.

Site Name	SWAMP Code	Station Code	Latitude	Longitude
Salt Slough at Lander Avenue**	541MER531	SSALA	37.24797	-120.85225
Salt Slough at Sand Dam	541XSSASD	SSASD	37.13664	-120.76194
Los Banos Creek at Highway 140**	541MER554	LBCHW	37.27619	-120.95547
Los Banos Creek at China Camp Road	541XLBCCC	LBCCC	37.11447	-120.88953
Poso Slough at Indiana Avenue	541XPSAIA	PSAIA	37.00622	-120.59033
Source Water Sites				
San Joaquin River at Sack Dam	541MAD0007	SJRSD	36.98353	-120.50050
San Joaquin River at PID Pumps	541STC507	SJRPP	37.49739	-121.08267
Delta Mendota Canal at DPWD Turnout	541XDMCDP	DMCDP	37.43678	-121.13347

**Discharge sites that are monitored year-round (both irrigation and non-irrigation season, and two rain events).

PESTICIDES AND TOXICITY EXCEEDANCE HISTORY

Toxicity and numerous exceedances of pesticide WQTLs have occurred at sites across the WSJRWC region (Table 5). These have resulted in the initiation of several management plans (Table 10). The exceedances have been distributed across the irrigation season (April – September) and the winter storm season (October – March) (Table 10).

Table 5: WSJRWC monitoring sites in management plans for pesticides and/or toxicity.

Monitoring Site	Chlordane	Chlorpyrifos	DDD	DDE	DDT	Diazinon	Dimethoate	Diuron	Malathion	Methyl-Parathion	Simazine	*C. dubia*	*S. capricornutum*
Blewett Drain near Highway 132		X		X				X					
Del Puerto Creek at Hwy 33				X		X				X		X	
Del Puerto Creek near Cox Road		X		X	X							X	
Hospital Creek at River Road		X		X	X	X		X		X		X	X
Ingram Creek at River Road		X		X	X	X	X	X	X	X	X	X	X
Los Banos Creek at China Camp Road		X											X
Los Banos Creek at Highway 140									X			X	
Marshall Road Drain near River Road	X	X		X	X	X	X	X	X			X	X
Mud Slough Upstream of San Luis Drain		X							X				
Newman Wasteway near Hills Ferry Rd.		X		X		X	X	X				X	X
Orestimba Creek at Hwy 33		X	X	X	X	X	X	X				X	
Orestimba Creek at River Road		X		X	X					X		X	
Poso Slough at Indiana Avenue		X					X	X	X			X	X
Ramona Lake near Fig Avenue		X		X				X				X	
Salt Slough at Lander Avenue		X						X	X			X	X
Salt Slough at Sand Dam		X						X	X			X	X
San Joaquin River at Lander Avenue								X	X				X
Westley Wasteway near Cox Road		X		X	X			X					X

Table 6: Number of exceedances that occurred at each monitoring site during the irrigation and winter storm season.

To evaluate recent trends of when exceedances occur, exceedances from 2012 through May 2017 were reviewed in this table.

Monitoring Site[1]	Analyte/Species	Irrigation (April-September)	Winter (October-March)	Total Exceedances
Blewett Drain at Highway 132	Chlorpyrifos	3		3
	Diuron	2		2
Del Puerto Creek at Hwy 33	Chlorpyrifos		1	1
Del Puerto Creek near Cox Road	*Ceriodaphnia dubia*	3		3
	Chlorpyrifos	1	3	4
Hospital Creek at River Road	*Ceriodaphnia dubia*		2	2
	Chlorpyrifos	3	3	6
	Diazinon	2		2
	Dimethoate	1		1
	Selenastrum Capricornutum		1	1
Ingram Creek at River Road	*Ceriodaphnia dubia*	2	1	3
	Chlorpyrifos	2	2	4
	Diazinon	2		2
	Dimethoate	1		1
	Diuron		3	3
	Selenastrum Capricornutum		3	3
	Simazine		1	1
Los Banos Creek at China Camp Road	Chlorpyrifos	1	1	2
	Diuron		1	1
	Malathion	1		1
	Selenastrum Capricornutum	1	1	2
Marshall Road Drain near River Road	*Ceriodaphnia dubia*	1		1
	Chlorpyrifos	2	2	4
	Diazinon	1		1
	Diuron		3	3
	Selenastrum Capricornutum		1	1
Mud Slough Upstream of San Luis Drain	*Ceriodaphnia dubia*	1		1
	Malathion		1	1
Newman Wasteway near Hills Ferry Road	*Ceriodaphnia dubia*		1	1
	Chlorpyrifos		1	1
	Diazinon	1	1	2
	Dimethoate	2		2
	Diuron		2	2
	Simazine		1	1
Orestimba Creek at Hwy 33	*Ceriodaphnia dubia*	1		1
	Diazinon	1		1
	Dimethoate	1		1
	Selenastrum Capricornutum	3	1	4
Orestimba Creek at River Road	Chlorpyrifos	1		1
Poso Slough at Indiana Ave	*Ceriodaphnia dubia*	2	1	3
	Chlorpyrifos	6	2	8
	Dimethoate	1	1	2
	Diuron	2	1	3
	Malathion	1	2	3
	Selenastrum Capricornutum	1	1	2
Ramona Lake near Fig Avenue	Chlorpyrifos		2	2
	Diazinon	1		1
Salt Slough at Lander Ave	Chlorpyrifos	1	1	2
	Diuron		1	1
	Malathion		3	3
	Selenastrum Capricornutum		1	1
Salt Slough at Sand Dam	*Ceriodaphnia dubia*		1	1
	Chlorpyrifos	4	1	5
	Dimethoate		1	1

Monitoring Site[1]	Analyte/Species	Irrigation (April-September)	Winter (October-March)	Total Exceedances
	Diuron		4	4
	Malathion		4	4
	Selenastrum Capricornutum		4	4
San Joaquin River at Lander Ave	Diuron		2	2
	Malathion		1	1
	Selenastrum Capricornutum		1	1
Westley Wasteway near Cox Road	Chlorpyrifos		1	1
	Diuron		1	1
	Selenastrum Capricornutum		1	1
Total Exceedances		**59**	**75**	**134**[a]
Percent Total Exceedances		**44%**	**56%**	**100%**

[1] Los Banos Creek at Hwy 140 had zero exceedances for the listed constituents from 2012-May 2017 and is excluded from the summary table.

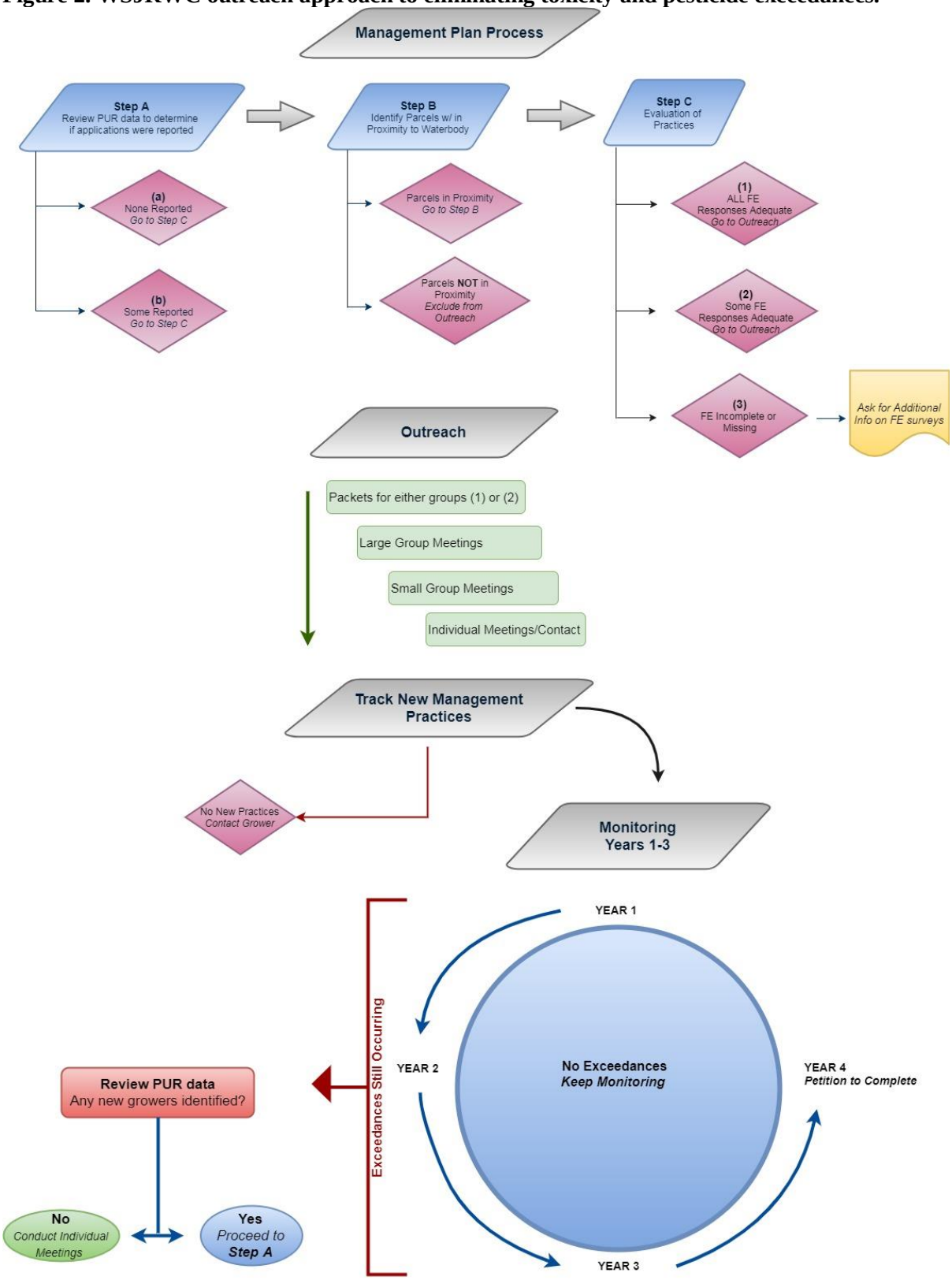
MANAGEMENT PLAN APPROACH FOR PESTICIDES AND TOXICITY

DESCRIPTION OF APPROACH

The goal of the process described in this Pesticide and Toxicity Constituent-Specific Management Plan is to eliminate exceedances of the WQTLs within the WSJRWC region. The strategy by which this goal can be achieved is having growers implement practices that will lead to the elimination of discharges that result in exceedances and toxicity. The metrics by which the success of this strategy can be evaluated include identifying parcels that are potential sources of the exceedances, reviewing implemented management practices as indicated on farm evaluations, conducting meetings with growers farming on 100% of the targeted parcels (targeted based on the identification of the parcels as possible contributors to the exceedances) that have been identified as needing to implement additional practices, documentation of the implementation of practices, and eventually improved water quality. These metrics are discussed below as Performance Measures. Each Performance Measure is linked to a specific Performance Goal.

For pesticides and toxicity, the approach to eliminating exceedances is based on the overall approach proposed in the SQMP with additional effort focused on source identification, identification of practices effective in eliminating discharges of pesticides, and outreach to growers providing information on these practices (Figure 2).

Figure 2. WSJRWC outreach approach to eliminating toxicity and pesticide exceedances.



The specific steps the WSJRWC will use to target its outreach are:

- Identify potential sources using PUR data,
- Determine member proximity to surface water and the potential to be the source based on the likely transport mechanism
- Evaluate management practices in place to determine the likelihood that the member could discharge, and
- Develop the final list of members who are potential sources.
- Conduct outreach to members who are potential sources and that do not have adequate management practices in place
- Track implementation of practices on returned Farm Evaluations
- Monitor water quality to determine effectiveness

Each of these steps is further explained below.

MANAGEMENT PLAN APPROACH FOR PESTICIDES AND TOXICITY

Identify Potential Sources

Pesticides are applied to agricultural commodities for pest control when they are needed. Some pesticides are registered for use only by agriculture (e.g., chlorpyrifos), while others may be applied by almost anyone for any reason (e.g., diuron, bifenthrin). Agricultural applications are carefully monitored through a combination of actions that include inspections of the applications of restricted materials by the County Agricultural Commissioner, and submission and review of Pesticide Use Reports (PUR) submitted to the County Agricultural Commissioner by growers who apply pesticides. These data are submitted to the California Department of Pesticide Regulation (DPR) and eventually placed in CalPiP, the DPR PUR database. PUR data represent a valuable resource that can be used to identify the chemicals applied, the commodities receiving applications, the amount of chemical applied, the location of the application (to Township/Range/Section), and the method of application. PUR data can identify Coalition members who applied pesticides that were later detected in surface water during normal monitoring. Alternatively, for chemicals

registered for use by multiple entities, if PUR data indicate that no growers have applied the product, the source of the exceedance can be attributed to non-agricultural sources. For those chemicals that are applied by Coalition members, the PUR data allow an evaluation of the transport mechanism, either stormwater or tailwater discharge or spray drift, that potentially moved the chemical to surface water (see below).

The WSJRWC will identify all members who applied the pesticide prior to the collection of the sample resulting in the exceedance, in a timeframe that could result in discharge being captured by the monitoring event (Table 7). In addition, the method of application is also identified which can be tentatively associated with the method of transport of the pesticide to the creek.

To identify the potential sources of chemicals causing toxicity, the WSJRWC must widen the search. For *Selenastrum* toxicity, the WSJRWC will identify any parcel that used herbicides, plant growth regulators, or copper, that could have caused the toxicity. For water column toxicity to *Ceriodaphnia* or *Pimephales*, any chemical used by members that could cause toxicity is assumed to be a potential cause of the toxicity. The Coalition maintains a database that associates pesticides with organisms that experience toxicity. The database was developed to identify any pesticide that could cause toxicity so that growers using those products can be identified and receive outreach.

All members located in a watershed that applied pesticides in the appropriated time frame are potential sources of the exceedance. The next steps in the process proposed by the WSJRWC are to eliminate growers as potential sources based on how they apply, where they apply, and what practices they have in place to prevent discharge.

Table 7. Timeframes of PUR data associated with exceedances of pesticides, metals, sediment toxicity, and water column toxicity.

EXCEEDANCE TYPE	PUR DATA TIMEFRAMES
Pesticides	30 days
Metals	90 days
Sediment Toxicity	90 days with 180 days for pyrethroids
Water Column Toxicity	30 days, with 180 days for pyrethroids and 90 days for metals

Potential Transport Mechanisms and Proximity

Once all members who are potential sources have been identified, their location in the watershed relative to surface water will be determined and mapped. Members that could not discharge by drift or tailwater because of their location relative to creeks or drainage ditches will be eliminated

from further consideration. Parcels greater than 600 feet from surface water will be eliminated as potential sources of drift, and parcels with no direct drainage will be eliminated as a potential source of tailwater discharge simply based on proximity.

Not all parcels within close proximity to the waterway will have contributed to the exceedance or caused the toxicity. To determine which parcels to target for outreach, the WSJRWC will determine the most probable method by which the pesticide entered the water. The concentration of a chemical in the sample water suggests whether the method of transport is spray drift, or discharge in irrigation tailwater or stormwater. Generally, a very small amount of a chemical in the water is indicative of spray drift while a large amount of chemical is indicative of tailwater or stormwater discharge. At intermediate concentrations, either method could be the cause of the exceedance.

The Coalition used monitoring data to understand the concentrations of management plan pesticides found in the water and developed a potential mode of transport for all pesticides for which exceedances of the WQTL occurred (Table 8). This information is used to evaluate types of management practices to focus on during outreach with growers.

Table 8. Potential modes of transport of pesticides based on concentration of constituents from 2012 through May 2017.

An exceedance was associated with spray drift if the concentration detected was less than two times the WQTL. If the exceedance was greater than two times the WQTL, it was associated with tailwater runoff.

Monitoring Site	Likely Drift	Tailwater	Total Exceedances
Blewett Drain at Highway 132	2	3	5
Del Puerto Creek at Hwy 33		1	1
Del Puerto Creek near Cox Road	2	2	4
Hospital Creek at River Road	2	7	9
Ingram Creek at River Road	1	10	11
Los Banos Creek at China Camp Road	2	2	4
Marshall Road Drain near River Road	4	4	8
Mud Slough Upstream of San Luis Drain		1	1
Newman Wasteway near Hills Ferry Road	5	3	8
Orestimba Creek at Hwy 33		2	2
Orestimba Creek at River Road		1	1
Poso Slough at Indiana Ave	2	14	16
Ramona Lake near Fig Avenue	2	1	3
Salt Slough at Lander Ave		6	6
Salt Slough at Sand Dam	2	12	14
San Joaquin River at Lander Ave		3	3
Westley Wasteway near Cox Road		2	2
Total Pesticide Exceedances	**24**	**74**	**98[a]**
Percent Exceedances	**24.5%**	**75.5%**	**100%**

[a] This table excludes 16 counts of samples that resulted in toxicity. Los Banos Creek at Hwy 140 had zero exceedances for the listed constituents from 2012-May 2017 and is not included in this summary table.

The WSJRWC has been providing outreach to its members for over a decade. As a result, most members have implemented management practices to prevent the discharge of pesticides to surface water. These management practices are reported on the member's Farm Evaluation Plan which is submitted to the Coalition each year.

Having an understanding of the potential mode of pesticide transport provides the Coalition with the ability to determine whether members who applied the pesticide(s) potentially contributed via drift or tailwater. Considering the timing of exceedances/toxicity and the type of irrigation methods implemented by growers will assist the Coalition in narrowing down which parcels to target for outreach. For irrigation season exceedances, if the grower irrigates using a pressurized irrigation system, it is unlikely that they could contribute to an exceedance that is generated by tailwater discharge (Table 8). Growers using flood/furrow irrigation could potentially discharge; the Coalition will determine if focused outreach is necessary based on the management practices that are already implemented. Similarly, for exceedances likely generated by spray drift, if a grower indicates that they have adequate management practices in place to control spray drift, that member will not be targeted for outreach.

Once members are identified as potential sources, their Farm Evaluation Plans will be reviewed to determine what management practices are in place to protect water quality. If exceedances of pesticide WQTLs are identified as the result of drift, management practices to control drift will be evaluated. If drift, stormwater, or tailwater discharge could have contributed to the exceedances, practices to control drift and surface discharge will be evaluated. The Coalition will determine if adequate practices are in place based on irrigation method and likely mode of transport (Table 9). If adequate practices are not in place, those members will be targeted for outreach. If it appears that adequate practices are in place, the members will not be targeted immediately for outreach although if water quality does not improve, these growers will be added to the members receiving outreach to determine if the practices are being implemented correctly.

Table 9: Acreage of irrigation practices implemented in subwatersheds with a pesticide and/or toxicity management plan.

Primary irrigation practice and total acreage reported was calculated from 2015 Farm Evaluations responses within each subwatershed.

Subwatershed*	Drip/Micro Sprinkler		Flood/ Furrow		Total Acreage Reported
	Primary Irrigation Acreage	Percent of Acreage	Primary Irrigation Acreage	Percent of Acreage	
Blewett Drain Subwatershed	1,795	68%	0	0%	2,636
Del Puerto Creek Subwatershed	6,580	58%	1,481	13%	11,200
Hospital Creek Subwatershed	5,545	73%	331	4%	7,548
Ingram Creek Subwatershed	5,350	85%	658	11%	7,526
Los Banos Creek Subwatershed	1,974	19%	8,330	78%	10,986
Marshall Road Drain Subwatershed	3,197	27%	6,002	51%	12,820
Mud Slough Subwatershed	2,161	31%	4,787	68%	7,747
Newman Wasteway Subwatershed	4,467	49%	2,812	31%	9,440
Orestimba Creek Subwatershed	7,756	50%	7,226	46%	15,805
Ramona Lake Subwatershed	965	15%	3,599	58%	8,157
Salt Slough Subwatershed	46,813	40%	63,784	55%	127,271
San Joaquin River at Lander-Represented	32,001	47%	32,774	48%	74,816
Westley Wasteway Subwatershed	2,912	59%	448	9%	4,323
Grand Total	**121,516**	**40%**	**132,232**	**44%**	**300,275**

*More than one monitoring site could be represented by a single subwatershed.
Irrigation responses for border strip (23,651), Sprinkler (8,696), and No Selection (14,174) were excluded from this comparison table for the subwatersheds evaluated in the table.

Adequate practices are identified by a combination of factors included on the FE (Table 11). For exceedances that appear to be the result of spray drift, members must indicate that they have all practices in place that are listed on the FE under spray drift management. For exceedances that could result from either spray drift or surface discharge, all practices must be in place.

Table 10: Irrigation and spray management practices considered adequate for exclusion from additional outreach based on irrigation type.

Orange Xs mark practices that should be implemented to protect waterways from spray drift. Green Xs mark the practices needed to be implemented to protect surface water from tailwater discharge.

Management Practice Category	Management Practices	Flood/Furrow	Drip/Sprinkler/Micro-Sprinkler
Irrigation Practices	Laser leveling	X	
	Use of ET in scheduling irrigations		
	Water application scheduled to need	X	X
	Soil moisture neutron probe		
	Pressure bomb		
Sediment and Erosion Practices	In-furrow dams used to increase infiltration and settling out of sediment prior to entering the tail ditch	X	
	Catchment Basin	X	
	Use of flow dissipators to minimize erosion at discharge point	X	
	Micro-irrigation or drip system		X
	Tailwater return system (recirculation)	X	

	Shorter irrigation runs are used with checks to manage flows	X	
	Use PAM in furrow and flood-irrigated fields to help bind sediment and increase infiltration	X	
Pesticide Application Practices	Reapply rinsate to treated field		
	Use drift control agents	X	X
	Use appropriate buffer zones	X	X
	Use vegetated drain ditches	X	
	Monitor rain forecast		
	Use PCA recommendations	X	X
	Chemigation		X
	Calibrate spray equipment prior to every application	X	X
	End of row shutoff when spraying	X	X
	Avoid surface water when spraying	X	X
	Monitor wind conditions	X	X
	Use target sensing sprayer	X	X
	Use nozzles that provide largest effective droplet size to minimize drift	X	X

Develop Final List of Growers for Outreach

After removing from its initial list of potential dischargers all members of the Coalition that 1) did not apply pesticides causing exceedances, 2) those not in close enough proximity to contribute to the exceedance, 3) those applying pesticides by methods unlikely to generate discharge, and 4) those members with adequate management practices in place, the final list of members needing outreach is developed. The final list of targeted growers could be further vetted by evaluating pounds of AI applied within parcels or any other additional criteria specific to the subwatershed and exceedance.

Outreach

The focus of the outreach program is to promote the appropriate management of constituents of concern. The WSJRWC will strategically target its outreach by developing and delivering outreach materials that are appropriate for the chemical and likely method of discharge that resulted in the exceedance or toxicity. This focus facilitates the identification of management practices that are applicable and implementable across a large amount of the Coalition region and yet is customized to individual growers. The steps involved in the outreach program include:

- Develop a list of management practices likely to reduce exceedances for various COCs within a Constituent Group.
- Inventory existing management practices using the FEP data.
- Compare practices in place on parcels identified as potential sources of exceedances

- Develop a list of practices likely to reduce exceedances for the Constituent Group COCs that are not being implemented on the targeted parcels/growers.
- Provide information on these exceedances to the targeted growers
- Track future management practice implementation and water quality results.

As part of its outreach, the WSJRWC also notifies members of exceedances in their watersheds. Monitoring results are disseminated to Coalition members via grower mailings, at grower outreach meetings, and by personal communication with growers. All documents associated with outreach are available from the WSJRWC upon request. Grower notification, management practice outreach and education, and management practice implementation and tracking are all additional actions taken by the WSJRWC to ensure that growers are aware of and take actions to address water quality concerns.

Tracking Implementation

Tracking the implementation of management practices will be done through the review and evaluation of the Farm Evaluation Plans submitted yearly by members. Each member targeted for outreach will have their FEPs reviewed yearly and the management practices listed as being in place will be compared to practices listed on the previous year's FEP. New practices will be noted and the information stored in a database that can be used for documentation when completion of management plans is requested. Growers are targeted for outreach because their parcels have been identified as a potential source of a pesticide causing toxicity or are found in excess of a WQTL. Consequently, their farming operation may need additional management practices to prevent future exceedances. The review will be used to identify members who either implemented additional practices and are no longer in need of outreach, or have not implemented additional practices and may need follow-up outreach. However, the need for additional outreach will ultimately be determined by water quality. Good water quality indicates that sufficient practices are in place in locations that may have discharged pesticides in the past but are no longer doing so.

Monitoring

As part of its regular monitoring and reporting program, the WSJRWC conducts monitoring of ambient surface waters to characterize discharges from irrigated agriculture. The Coalition notifies the Regional Water Board of all exceedances with electronically submitted Exceedance Reports. Monitoring results are analyzed to identify constituents, agricultural lands, crops, and/or specific

pesticides that need to be managed differently to reduce or eliminate discharges from agriculture to surface water.

Implementation Timeline

The WSJRWC will implement the management plan approach immediately. The Coalition will identify potential sources or pesticides causing impairments of beneficial uses by May 2018. By May 2018, the Coalition will have compiled a list of members to contact for outreach based on association with past exceedances and inadequate farm evaluation responses. Once the final member list is compiled, the Coalition will then begin contacting members in October 2018. Grower outreach will inform growers that they could be sources of exceedances of the WQTLs of applied pesticides, or sources of chemicals causing toxicity. Included in the outreach packets will be recommended practices customized for each subwatershed. Growers will implement recommended management practices in 2019 where feasible. Farm Evaluation Plans received in 2019 will be reviewed to determine if additional practices were implemented as a result of the outreach. Monitoring is ongoing and will be used to evaluate the effectiveness of the approach.

Future Efforts

Moving forward, the level of effort and the timing involved in source identification, outreach, and monitoring will be determined by the ability of the WSJRWC to identify the source(s) of the exceedances (e.g. member applications of pesticides that are found in surface waters), and recommend management practices to prevent discharges. In the future, the Coalition will continue to review FEP responses submitted by growers identified as potential sources, the grower will receive information about management practices that could be effective in eliminating the exceedances, and monitoring will occur. For any exceedances of WQTLs for pesticides that trigger a management plan in the future, the Coalition will begin sourcing, outreach, and monitoring activities within two years from the date the management plan is triggered. This time schedule ensures that the management plan process is complete within five years with the exception of the monitoring to evaluate compliance. When three years of monitoring with no exceedances has been achieved, the WSJRWC will request management plan completion for sites/constituents with improved water quality results.

If, after all members identified as potential sources have received outreach, water quality has not improved, the WSJRWC will take several additional steps. The FEPs of all potential sources will be reviewed to determine if members are implementing additional practices as necessary. If not, they will be the focus of additional and more intensive outreach. If all members have implemented practices determined to be protective, the Coalition will review its list of practices and determine if additional practices should be added to the list of practices considered to be protective of surface water. If the list of practices is adequate, the search for potential sources will widen including identifying parcels located a greater distance from surface water.

Performance Goals and Performance Measures

The WSJRWC's Performance Goals are built on actions described above and are consistent with the Performance Goals and Measures provided in the SQMP. The Performance Goals reflect the steps necessary to guarantee that the objectives of the Management Plan program are met and that water quality improves in the Coalition region. The Performance Goals and Measures below are extensions of the broader PGs and PM's in the SQMP and allow the WSJRWC to focus on specific actions outlined above. Each year the WSJRWC will submit in the Annual Report an update on progress made toward completing the Performance Measures. The Performance Goals in the SQMP are:

1. Identify enrolled parcels that have the potential to contribute to the subject exceedance.
2. Review the member's FEP to determine what management practices are currently in place, and determine if additional practices are necessary.
3. Hold watershed-wide and/or individual grower meetings to review the water quality issues and Management Plan requirements. Provide recommendations for management practices where appropriate.
4. Track implementation of management practices through annual FEP data.
5. Track Management Plan effectiveness through water quality data.

Performance Measures are associated with specific actions taken by the Coalition to achieve the associated Performance Goal. It will not always be necessary to fully implement each Performance Measure in order to achieve the goal. The performance goals and performance measures are applied individually to each site subwatershed in a management plan. The Annual Monitoring

Report will include a discussion of the site subwatersheds in which these activities will take place over the next few years along with a time schedule for completion of the Performance Measures.

Performance Goal 1. Identify WSJRWC-enrolled parcels that have the potential to contribute to the exceedance of the WQTL of a pesticide or toxicity.

Performance Measures

1. Use PUR data to determine parcels associated with the exceedance or toxicity. Take note of crop types and the application method used by potential sources. Use the information to further refine the list of potential sources.
2. Use monitoring data associated with the exceedance of a WQTL or toxicity to determine the most likely method(s) of transport (drift, surface discharge, or both) to surface water.
3. Map member parcels to determine proximity to surface waters in management plans.
4. Use PUR data to determine the application method used by potential sources.

Information collected through these performance measures will produce a list of parcels to be reviewed and associated with Coalition members to be contacted for outreach.

Members are identified as being a potential source of an exceedance based on: 1) use of the chemical causing the exceedance, or potentially causing toxicity, and 2) ability of the parcel to drain or drift to surface water. Narrowing the search for potential sources by the transport and application method, and the crop to which the pesticide was applied will allow for a more focused outreach effort that is tailored to specific growers and practices which is much more likely to be effective.

Performance Goal 2. Review the member's Farm Evaluation Plan for the identified parcels to determine what management practice(s) have been implemented.

Performance Measures

1. Develop a list of practices that are known to be effective in preventing the discharge of pesticides to surface water.
2. From the list of parcels and members developed under Performance Measure 1.4, review the available FEP data from members to determine management practices already implemented.
3. Review practices in place by potential sources and use the list of adequate practices to determine which members may need to implement additional practices.

The FEP is completed by all members. The WSJRWC will review these submissions to determine what practices are in place at member farming operations in watersheds with management plans for pesticides or toxicity.

Performance Goal 3. Hold grower meetings to review the water quality issues and Management Plan requirements. Provide recommendations for management practices where appropriate.

Performance Measures

1. Provide monitoring results to 100% of the members identified under Performance Goal 2 with a discussion of the likely sources/causes.
2. Provide recommendations to 100% of the members identified under Performance Goal 2 on additional management practices that could be implemented.
3. Track meeting attendance.

The WSJRWC holds several different types of meetings each year. Large annual meetings and regional meetings are held to discuss water quality impairments and provide information on management practices; however, they do not focus on individual management plans. The WSJRWC does hold, and will continue to hold, meetings with single growers to review information generated by FEPs and NMP Summary Reports. At these meetings, if additional management practices are necessary to prevent discharges, Coalition representatives will recommend that the member implement the practices. The WSJRWC may also hold subwatershed level meetings to discuss a management plan (or multiple management plans), potential sources and effective practices that can be implemented by members within the subwatershed.

Performance Goal 4. Track implementation of management practices through annual FEP data.

Performance Measures

1. Summarize collected FEP data to identify relevant agricultural changes within the Management Plan watershed, including changes in management practices and cropping patterns.

Once the WSJRWC determines that an additional management practice(s) could be effective in eliminating discharges, the grower will receive additional information about relevant practices they should consider implementing. The information provided on the FEP the following year should reflect whether the member did implement the practice. The WSJRWC will review the FEPs of members contacted the previous year to determine if the practice(s) was implemented. If

it appears that the practice was not implemented, the Coalition will contact the member to determine why, and if the member anticipates being able to implement the practice in the coming year. If financial constraints prevented the implementation, the Coalition will provide the member with information on programs that may be able to provide funds to assist with the implementation.

Performance Goal 5. Track Management Plan effectiveness through evaluation of water quality monitoring data.

Performance Measures

1. Review water quality monitoring data to track changes in water quality within the Management Plan watersheds and evaluate the effectiveness of implemented management practices.

Evaluating of the effectiveness of management practices is ultimately based on improved water quality. The WSJRWC monitors every waterbody in a management plan to determine if water quality is improving.

Included in the table of Performance Goals and Performance Measures are the parties responsible for performing the actions described by the Performance Measures.

Table 11. Performance Goals and Measures for the WSJRWC Surface Water Quality Management Plan.

PERFORMANCE GOAL/MEASURE	OUTPUTS (KEPT INTERNALLY)	WHO
Performance Goal 1: Identify enrolled parcels that have the potential to contribute to the subject exceedance.		
Performance Measure 1.1: Use PUR data to identify parcels that received applications that had the potential to cause or contribute to exceedances triggering the management plan.	List of parcels and member contact information for all members/parcels where pesticides were applied.	Westside Coalition
Performance Measure 1.2: Use monitoring data associated with the exceedance of a WQTL or toxicity to determine the most likely method(s) of transport (drift, surface discharge, or both) to surface water.	Most probable method of discharge that led to the exceedances that triggered the management plan.	Westside Coalition
Performance Measure 1.3: Use PUR data to determine the application method used by potential sources. Use the information to further refine the list of potential sources.	List of members/parcels where the application method is consistent with the type of discharge leading to the exceedance of the WQTL or toxicity.	Westside Coalition
Performance Measure 1.4: Map member parcels to determine location of potential sources relative to surface waters in management plans.	Map(s) of the members/parcels that could be the potential sources of the pesticide causing the exceedance of the WQTL or toxicity.	Westside Coalition
Performance Goal 2: Review the Farm Evaluation Plan (FEP) for the identified parcels to determine what management practice(s) have been implemented.		
Performance Measure 2.1: Develop a list of practices that are known to be effective in preventing the discharge of pesticides to surface water.	List of management practices effective at eliminating spray drift and/or tailwater discharge.	Westside Coalition
Performance Measure 2.2: From the list of parcels and members developed under PM 1.3, review the available FEP data from members to determine management practices already implemented.	Summary of FEP data for the Management Plan watershed and list of implemented management practices.	Westside Coalition
Performance Measure 2.3: Review practices in place by potential sources identified for PM 1. 3and use the list of effective practices to determine which members may need to implement additional practices.	List of members/parcels that may need to implement additional management practices.	Westside Coalition
Performance Goal 3: Hold grower meetings to review the water quality issues and Management Plan requirements. Provide recommendations for management practices where appropriate.		
Performance Measure 3.1: Provide monitoring results to 100% of the members identified under Performance Goal 2 with a discussion of the likely sources/causes.	Agenda and materials for meeting.	Westside Coalition
Performance Measure 3.2: Provide recommendations to 100% of the members identified under Performance Goal 2 on additional management practices that could be implemented.	List of recommended management practices.	Westside Coalition
Performance Measure 3.3: Track meeting attendance.	Meeting attendance lists.	Westside Coalition
Performance Goal 4: Track implementation of management practices through annual FEP data.		
Performance Measure 4.1: Summarize collected FEP data to identify relevant agricultural changes within the Management Plan watershed, including changes in management practices and cropping patterns.	Summary of new FEP data and discussion of changes.	Westside Coalition
Performance Goal 5: Track Management Plan effectiveness through water quality data.		
Performance Measure 5.1: Review water quality monitoring data to track changes in water quality within the Management Plan watersheds and evaluate the effectiveness of implemented management practices.	Summary of water quality results and discussion (included in the AMR).	Westside Coalition

Agencies Contacted for Data and/or Assistance

The WSJRWC utilizes pesticide use data from the county Agricultural Commissioners to assist with identifying sources of pesticides and toxicity that occur due to pesticides. The WSJRWC works with the different County Agricultural Commissioners to obtain preliminary data approximately every quarter. While these data are not considered final, they are sufficiently accurate and available on a schedule that allows the WSJRWC to identify potential sources of pesticide discharges that result in the exceedances of the WQTLs or toxicity that result in the need for Management Plans.

MONITORING

As described in the Monitoring and Reporting Program (MRP), Attachment B to the 2014 Order, surface water monitoring at all sites occurs based on a March to February monitoring cycle and includes an assessment of field parameters, nutrients, pathogens, pesticides, metals, and toxicity to water column and sediment species. Both quarterly, and as a component of the Annual Monitoring Report, all surface water monitoring data are submitted electronically. A detailed update of all management plan activities is included in Annual Monitoring Reports.

The WSJRWC submits a Monitoring Plan Update (MPU) on January 15 of each year detailing the locations scheduled for monitoring, the constituents to be monitored at each site, and the frequency of monitoring for the upcoming monitoring year. The WSJRWC reports on the monitoring results from the previous WY in the November 30 Annual Report.

DATA EVALUATION

INFORMATION TO QUANTIFY PROGRAM EFFECTIVENESS

The WSJRWC currently maintains databases for water quality monitoring data, management practices reported by members in their FEP submittals, and PUR data received from the offices of the County Agricultural Commissioners and CalPiP, the DPR pesticide use database. The WSJRWC PUR database contains information on pesticides applied in the Coalition region including physical, chemical, and toxicological information that are used to identify applications that have the potential to cause toxicity (i.e., chemicals that can cause toxicity to one of the four standard toxicity test species).

Although the PUR data provide location information only to the section level, the WSJRWC has a process that uses the commodity and acreage to identify the fields to which the chemical was applied. Although this process may not be absolutely accurate, it is sufficiently accurate to target members for outreach. This process has been made even easier because the FEP provides up-to-date information on the crops grown, the acreage, and the exact location of the field. These data are then compared to the data generated from the pesticide use database to identify exactly which members applied the target chemical, when they applied the chemical, how they applied the chemical, and what practices were used to control the discharge. This information allows the WSJRWC representatives to develop a set of management practices that can be implemented to prevent discharges in the future. These practices will be discussed with the member during the WSJRWC outreach.

As all growers submit their FEPs, the WSJRWC is developing a record of all management practices implemented on every field in the Coalition region. As members complete and submit their yearly FEPs to the WSJRWC, a record is developed of the practices used on their farming operation which can then be associated with water quality data. If it appears that additional practices are being implemented by the member and water quality does not improve, either the practices are not effective, or the discharge is from a non-targeted member or some other entity in the watershed. Other than WSJRWC members, the region consists of: 1) a few dairies that do not belong to the Coalition, 2) some growers with fallow or non-irrigated land, and 3) industrial and

urban areas. If the WSJRWC believes that non-members are responsible for discharges, they will bring the information to the attention of the Regional Water Board.

METHODS OF DATA EVALUATION

The WSJRWC expects that graphical and tabular presentations of data such as management practices in place, practices recommended, and practices implemented will be sufficient to convey results of the evaluation of the tracking of the management practices implementation. Water quality data will be summarized for presentation in the Management Plan Progress Report included as part of the Annual Report submitted on November 30 of each year.

RECORDS AND REPORTING

Annually, the WSJRWC submits a Monitoring Plan Update report with the schedule and constituents that will be monitored in the upcoming monitoring year. The WSJRWC also submits an Annual Monitoring Report providing all data and an interpretation of the monitoring results in the context of the six questions listed in the WDR. Included in the AMR is the annual Management Plan Progress Report which contains a reporting on the 13 components listed in Appendix MRP-1 of the WDR. All data and reports are submitted to the Regional Water Board electronically.

In addition to the reports discussed above, the WSJRWC submits all monitoring data to the Regional Water Board on a quarterly basis. Submissions are one quarter behind the current monitoring data collection process due to the delay in receiving and reviewing data from the laboratories. If monthly monitoring data indicates that toxicity has occurred, or that a chemical has been detected at a concentration in excess of the WQTL, an exceedance report is submitted to the Regional Water Board. Both the exceedance reports and the quarterly data submittals provide the Regional Water Board with the data needed to evaluate the efficacy of the WSJRWC's management plan process.